DEFENCE R&D DÉFENSE

DRES Chemical Warfare Agent Literature Database of Analytical Methods

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Abstract

Defence Research Establishment Suffield (DRES) is actively involved in the development and evaluation of new analytical methods for the detection and identification of chemical warfare agents, their degradation products and related compounds. These methods are used for the analysis of samples collected in support of the Canadian Forces and have application in arms control verification. DRES analytical methods are published regularly in the open literature along with the methods developed by others involved in chemical warfare agent sample preparation and analysis. DRES retains printed copies of all publications in the database and regularly updates the bibliographic information from these papers into Procite, a computer searchable bibliographic database program. The DRES Chemical Warfare Agent Literature Database of Analytical Methods contains bibliographic information for more than 260 publications, and is available on request in hardcopy form or as a Procite, Word or Wordperfect file.

Résumé

Le Centre de recherches pour la défense Suffield (CRDS) s'occupe activement du développement et de l'évaluation de nouvelles méthodes analytiques de détection et d'identification d'agents de guerre chimique, des produits de dégradation de ces derniers et des composés connexes. Ces méthodes sont utilisées pour analyser des échantillons recueillis à l'appui des Forces canadiennes et s'avèrent également utiles à la vérification du contrôle des armements. Les méthodes analytiques du CRDS sont publiées régulièrement dans des ouvrages accessibles à tous au même titre que les méthodes élaborées par d'autres chercheurs qui travaillent à la préparation et à l'analyse d'échantillons d'agents de guerre chimique. Le CRDS conserve des exemplaires de toutes les publications et saisit régulièrement les dernières informations bibliographiques tirées de ces documents dans une base de données bibliographiques consultable appelée Procite. La base de données du CRDS sur les documents relatifs aux méthodes analytiques d'agents de guerre chimique contient des informations bibliographiques tirées de 260 publications. On peut, sur demande, obtenir une copie de toutes les informations sur copie papier ou en fichier Procite, Word ou WordPerfect.

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Executive summary

Introduction: The Canadian Forces may be called on to perform peacekeeping or battlefield operations in regions of the world where there is a significant threat of chemical warfare agent use. To operate effectively in these theatres the Canadian Forces must be able to identify the chemical warfare agent used. Analytical methods have been developed for the identification of chemical warfare agents and Defence Research Establishment Suffield is currently investigating new approaches in fulfilment of future Canadian Forces detection and identification requirements.

Results: Defence Research Establishment Suffield has developed sample handling and analysis methods for the identification of chemical warfare agents, their degradation products and related compounds. These methods have been used for the analysis of samples collected by the Canadian Forces and have application in arms control verification. DRES analytical methods have been published regularly in the open literature along with the methods developed by others involved in chemical warfare agent sample preparation and analysis. DRES retains printed copies of these papers in a database and regularly updates the bibliographic information from these papers into Procite, a computer searchable bibliographic database program. The DRES Chemical Warfare Agent Literature Database of Analytical Methods now contains nearly twice as many entries as a prior publication and this update contains bibliographic information for the complete database.

Significance: The Canadian Forces may be deployed in regions of the world where there is a significant threat of chemical warfare agent use. Identification of the chemical warfare agent is important since the results of such analyses would contribute to the development of strategic and political positions regarding future Canadian military operations and would facilitate the dissemination of technical advice to in-theatre field commanders and medical personnel.

Future Plans: The DRES Chemical Warfare Agent Literature Database of Analytical Methods will continue to be updated on a regular basis. Use of the analytical methods is anticipated during future analyses in support of the Canadian Forces or in support of arms control verification. The complete database is available on request in hardcopy form or as a Procite, Word or Wordperfect file.

D'Agostino, P.A., Hancock, J.R. and Provost, L.R., 2001. DRES Chemical Warfare Agent Literature Database of Analytical Methods. DRES SSP 2001-014. Defence Research Establishment Suffield.

Sommaire

Introduction : Les Forces canadiennes sont susceptibles d'être appelées à effectuer des opérations de maintien de la paix ou de champ de bataille dans des régions du monde où des menaces non négligeables d'utilisation d'agents de guerre chimique existent. Afin de bien mener les opérations dans ces théâtres, les Forces canadiennes doivent être capables d'identifier les agents de guerre chimiques utilisés. Des méthodes analytiques servant à identifier les agents de guerre chimiques existent, et le Centre de recherches pour la défense Suffield est à chercher d'autres approches répondant aux besoins futurs des Forces canadiennes en matière de détection et d'identification.

Résultats : Le Centre de recherches pour la défense Suffield a créé des méthodes de prélèvement, de transport et d'analyse d'échantillon en vue de l'identification d'agents de guerre chimique, des produits de dégradation de ces derniers et des composants connexes. Ces méthodes ont servi à l'analyse d'échantillons recueillis à l'appui des Forces canadiennes et elles s'avèrent utiles à la vérification du contrôle des armements. Les méthodes analytiques du CRDS ont été publiées régulièrement dans des ouvrages accessibles à tous au même titre que les méthodes inventées par d'autres chercheurs travaillant à la préparation et à l'analyse d'échantillons d'agents de guerre chimique. Le CRDS conserve des exemplaires de ces ouvrages et saisit régulièrement les nouvelles informations bibliographiques tirées des ces documents dans une base de données bibliographiques consultable appelée Procite. La base de données du CRDS sur les documents relatifs aux méthodes analytiques d'agents de guerre chimique contient actuellement deux fois plus d'entrées qu'une publication antérieure, et la présente mise à jour met en cause des informations bibliographiques pour toute la base de données.

Signification : Les Forces canadiennes peuvent être déployées dans des régions du monde où des menaces non négligeables d'utilisation d'agents de guerre chimique existent. Il est important d'identifier les agents de guerre chimique puisque les résultats des analyses, d'une part, aideraient à l'adoption d'une position et stratégique et politique vis-à-vis des futures opérations militaires canadiennes et, d'autre part, faciliteraient la circulation de conseils techniques parmi les commandants d'unité et le personnel médical dans le théâtre.

Futurs plans : On continuera de mettre à jour, de façon régulière, la base de données du CRDS sur les documents relatifs aux méthodes analytiques d'agents de guerre chimique. On prévoit que les méthodes analytiques seront utilisées lors des futures analyses effectuées à l'appui des Forces canadiennes ou à l'appui de la vérification du contrôle des armements. On peut obtenir, sur demande, une copie de la base de données complète, sur papier ou en fichier Procite, Word ou WordPerfect.

D'Agostino, P.A., Hancock, J.R. and Provost, L.R., 2001. DRES Chemical Warfare Agent Literature Database of Analytical Methods. DRES SSP 2001-014. Defence Research Establishment Suffield.

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Introduction 1

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Introduction

The Canadian Forces may be called on to perform peacekeeping or battlefield operations in regions of the world where there is a significant threat of chemical warfare agent use. To operate effectively in these theatres the Canadian Forces must be able to identify the chemical warfare agent(s) being used. Development of instrumental analytical methods for the identification and confirmation of these compounds is an important CF requirement that is being actively addressed by Defence Research Establishment Suffield (DRES) analytical researchers. Mass spectrometry and gas and liquid chromatography, core capability areas in the analytical sciences at DRES, form the basis for current analytical methods for the identification and confirmation of chemical warfare agents. In-house methods have been validated during NATO and United Nations analytical exercises with improvement continuing through the exploitation of new analytical technologies, including packed capillary liquid chromatography and electrospray mass spectrometry.

DRES analytical methods have been published regularly in the open literature along with the methods developed by others for agent sample preparation and analysis. Printed copies of these papers have been archived in a database and DRES regularly updates the bibliographic information from these papers into Procite, a computer searchable bibliographic database program. Update of the database continues as an ongoing effort and the The DRES Chemical Warfare Agent Literature Database of Analytical Methods contains more than 260 entries and is available on request in hardcopy form or as a softcopy Procite, Word or Wordperfect file. A listings of the entries follows.

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